

A new genus and species of Pseudolivinae, with a note on the status of *Sylvanocochlis* Melvill, 1903 (Mollusca: Gastropoda: Olividae)

by

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ABSTRACT

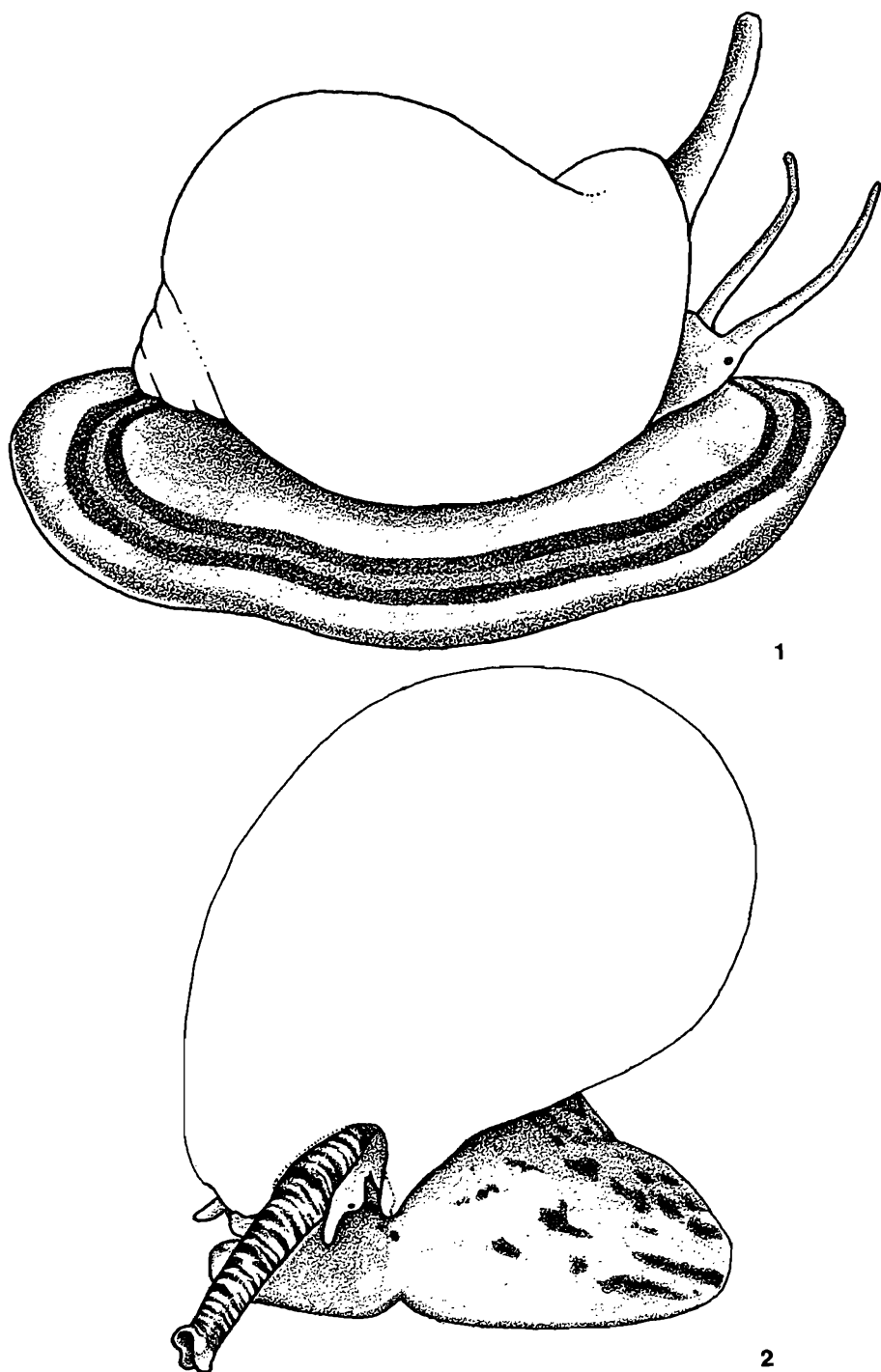
Naudoliva gen. n., with type-species *N. caitlinae* sp. n., is described from off Sandy Point, Transkei, in 87–95 m. *Sylvanocochlis* Melvill, 1903, is a junior subjective synonym of *Pseudoliva* Swainson, 1840.

INTRODUCTION

Among the numerous new species dredged during the Natal Museum's survey of the benthic molluscs of Transkei was a very distinctive member of the primitive olivid subfamily Pseudolivinae. Although the affinities of this species appear to lie with members of the genera *Pseudoliva* and *Sylvanocochlis*, its external anatomy, considered together with radula and shell characters, necessitates the proposal of a new genus. Furthermore, examination of the characters of the type-species of *Sylvanocochlis* fails to provide grounds for maintaining it as a genus distinct from *Pseudoliva*.

Relationship between *Sylvanocochlis* and *Pseudoliva*

Sylvanocochlis Melvill, 1903, was based on a single species, *Pseudoliva ancilla* Hanley, 1859, which is endemic to the Agulhas Bank and southern Cape littoral. It was distinguished by Melvill from members of the West African genus *Pseudoliva* Swainson, 1840, on shell characters alone, namely its 'sloping extended spire, rapidly becoming attenuate, compressed whorls, not in the least degree channelled, and unusual coloration'. Its distinctness from *Pseudoliva* has not been questioned by subsequent authors, who would appear to have compared *Sylvanocochlis* solely with the peculiarly globose and low-spined *Pseudoliva crassa* (Gmelin, 1791), type-species of *Pseudoliva*. In fact, the two species mentioned appear to be extremes in a transformation sequence, linked not only by other members of the genus *Pseudoliva*, but also by a broad-shelled form of *S. ancilla* which was figured by Turton (1932: pl. 7, no 246). In contradiction to Melvill's statement, shell coloration in *S. ancilla* scarcely differs from that of some *Pseudoliva* species. It might be added that the angular parietal callus found in *P. crassa* (and developed into a massive ridge in *P. sepimentum* (Rang, 1832), type-species of subgenus *Fulmentum* P. Fischer, 1884), occurs also in *S. ancilla*. Significantly, the radula of *S. ancilla* (cf. Barnard 1958: fig. 15a) closely resembles that of *P. crassa* (cf. Thiele 1929: fig. 383) and *P. sepimentum* (cf. Bouchet & Warén 1985: fig. 669), and differs greatly from other pseudolivine genera in its bicuspidate lateral plates.



Figs 1-2. *Melapium lineatum* (Lamarck, 1822) and *Pseudoliva ancilla* Hanley, 1859, living animals. 1. *M. lineatum*, side view of crawling animal, drawn from colour transparency taken by Dr A. Connell. 2. *P. ancilla*, front view, from colour transparency taken by A. Penney. Not drawn to scale.

Ponder & Darragh (1975), in a study of the anatomy and relationships of *Zemira* H. & A. Adams, 1853, reported significant differences in shape of cephalic tentacles and development of the siphon between members of that genus and the genera *Pseudoliva* and *Melapium* H. & A. Adams, 1853. Colour transparencies of a living individual of *Sylvanocochlis ancilla* (photographed by Mr Andrew Penney) and preserved bodies (presented by Mr R. Tarr), show this species to possess a well-developed siphon and tentacles (Fig. 2), which resemble those of *Pseudoliva*, as described by Thiele (1929: 331) and by Ponder & Darragh (1975). The operculum has a similarly terminal nucleus. In view of the close resemblance in external anatomy, radula, operculum and shell characters between the two taxa, it is evident that no satisfactory grounds exist for maintaining *Sylvanocochlis* as a genus (or even subgenus) distinct from *Pseudoliva*. I therefore propose the following synonymy:

Pseudoliva Swainson, 1840

Pseudoliva Swainson, 1840: 82, 133, 306. Type-species (o.d.) *P. plumbea* 'Chemnitz' Dillwyn, 1817 [= *Buccinum crassum* Gmelin, 1791].

Mariona Melvill in Sowerby, 1889 (*non* Vayssière, 1879), as subgenus of *Pseudoliva*: 149 [syn.n.]. Type-species (by monotypy) *Pseudoliva ancilla* Hanley, 1859.

Sylvanocochlis Melvill, 1903: 325 [syn. n.]. Type-species (o.d.) *P. ancilla*.

Key to non-abysal genera of the Pseudolivinae

- 1 Shell without an ancillid groove; operculum absent; tentacles long and slender, without eye-lobes. **Melapium**
- Shell with an ancillid groove; operculum present; tentacles short, with eye-lobes. 2
- 2 Shell without distinct siphonal canal; operculum with subterminal nucleus; tentacles short and triangular, with large eye-lobe; siphon extremely short **Zemira**
- Shell with distinct, deeply notched siphonal canal; operculum with terminal nucleus; tentacles various; siphon well-developed 3
- 3 Periostracum present, shell thick, labral tooth small; tentacles fairly long and tapering with single basal eye-lobe; lateral plates of radula bicuspidate **Pseudoliva**
- Periostracum absent, shell thin, labral tooth large; tentacles very short, with large double lobe at base; lateral plates of radula unicuspidate. **Naudoliva** gen. n.

Naudoliva gen. n.

Type-species: *N. caitlinae* sp. n.

Diagnosis: Shell bucciniform, with rather large, wide aperture and low, blunt spire, suture not channelled, inner lip smooth, without a parietal ridge or angle; surface fairly glossy, with fine, scratch-like spiral sulci and coarse growth-lines; periostracum absent; ancillid groove shallow but distinct, terminating in a massive labral tooth. Operculum oblongate, acutely pointed anteriorly, occupying most of aperture, nucleus terminal. Radula (Fig. 4), with tricuspidate rachidian and falcate, unicuspidate lateral plates.

Anatomical notes (Fig. 3): Foot moderately broad, fairly large (but fully retractile), simple, with neither dorsal appendages nor demarcated propodium (although anterior margin of sole bordered by distinct groove into which presumably open the anterior pedal glands); head without snout, tentacles consisting of very short, blunt distal end, with broad, bilobate base, outer lobe of which bears a distinct eye. Siphon moderately long, its margin simple, mantle edge forming a fold across its base; no anterior or posterior pallial tentacle. Penis (Fig. 8) flattened, end pointed, without appendages, sperm duct an open groove. Gland of Leiblein large, dark brown.

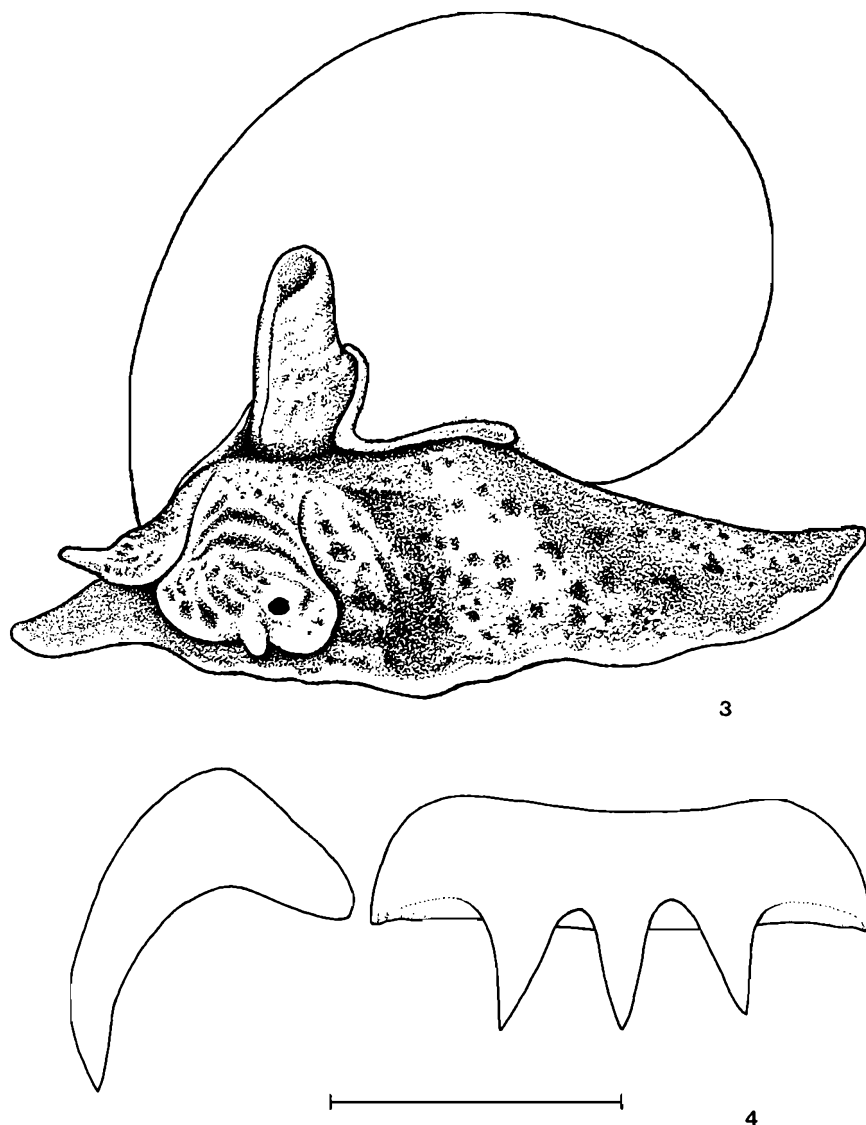
Notes: In this genus, external anatomy is somewhat similar to that of the Australian genus *Zemira* H. & A. Adams, 1853, as described by Ponder & Darragh (1975), save that in *Zemira* the siphon is extremely short and the tentacles, although flap-like, are triangular, each with a single large basal eye-lobe. In contrast, in *Pseudoliva* the tentacles are relatively long and tapering with a small basal eye-lobe. In the third non-abyssal genus, *Melapium* of southern Africa and Mozambique, the tentacles are very long and slender (Fig. 1), without a basal lobe. Eyes are absent in *M. elatum* (Schubert & Wagner, 1829), according to Ponder & Darragh (1975), but are certainly present in the other member of the genus (*M. lineatum* (Lamarck, 1822)); this may be depth-related, *lineatum* living mainly at depths of 5–70 m, whereas *elatum* is normally encountered in 40–270 m (except in Mozambique where it extends into the littoral region). The operculum in *Naudoliva* resembles that of *Pseudoliva*, that of *Zemira* differing in possessing a subterminal nucleus; an operculum is entirely absent in *Melapium*. From the abyssal genus *Benthobia* Dall, 1889 (= *Nux* Barnard, 1960), *Naudoliva* differs in shell form and in its non-multicuspidate radula (cf. Bouchet & Warén 1985: 249, fig. 667); no information on tentacle form in *Benthobia* is available.

***Naudoliva caitlinae* sp. n.**

Figs 3–9

Diagnosis: Subsutural region and median area of body whorl suffused with brownish-orange to dark reddish-brown (showing below periphery on spire whorls), with inconspicuous, articulated hairlines of orange-brown and white dashes, base of body whorl strongly speckled. For other characters see under description.

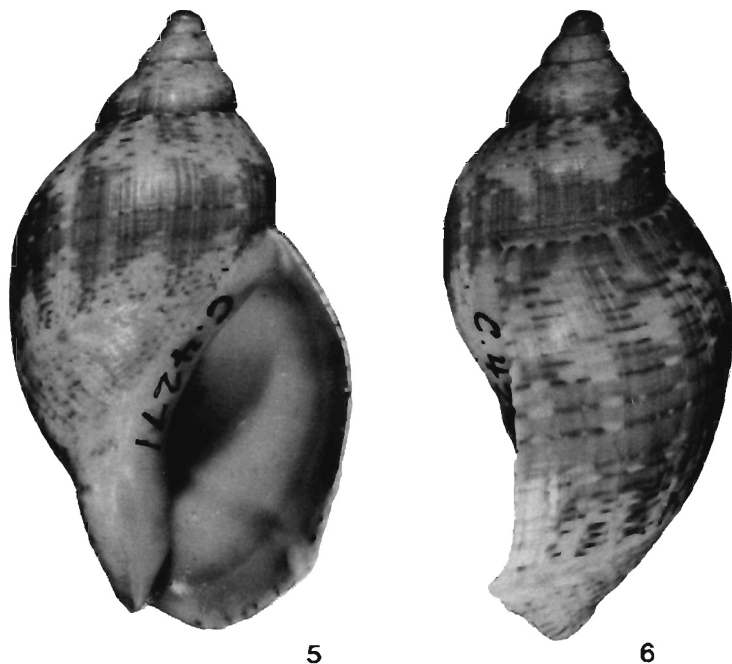
Description: Shell (Figs 5–6) bucciniform, of nearly 4 teleoconch whorls, breadth/total length 0,52–0,56, aperture large, aperture/total length 0,54–0,55, spire relatively low, with blunt apex, suture distinct but not channelled, spire whorls moderately convex, slightly flattened above periphery, periphery at about basal third on 1st whorl, more or less median on penultimate whorl, sides of body whorl strongly convex, base roundedly truncate, columella slightly foreshortened so that base of outer lip projects somewhat, left side of base slightly concave, with distinct fasciole but no false umbilicus, although outer side of columella callus is flanked by a slight furrow. Surface glossy, without periostracum, with shallow ancillid groove (see Kilburn 1981: fig. 10), pricked by chevron-shaped growth-lines and terminating in a massive labral tooth; ancillid groove visible inside aperture as a ridge.



Figs 3–4. *Naudoliva caitlinae* sp. n. 3. Living animal, drawn from colour transparency of holotype, taken by Dr J. P. Marais. 4. Radula, scale-line = 0,1 mm.

Outer lip thin, more or less orthocline in side-view but medially distinctly concave, arching forward to labral tooth. Aperture elliptical, acute but curved posteriorly, greatest width median, anteriorly flaring slightly; siphonal canal short, shallowly notched dorsally. Inner lip evenly concave, with thick, smooth callus, slightly swollen next to anal notch, but not forming an angle or ridge.

Sculptured by fine, very shallow spiral sulci, crossed by rather coarse growth-lines that are pliculate in places, rendering early whorls weakly clathrate. First



Figs 5–6. *Naudoliva caillinae* sp. n. holotype, apertural and side views of shell; dimensions 29,8 × 16,3 mm.

teleoconch whorl initially with 6–7 low spiral lirae, subequal in width to their intervals, increasing by interpolation to 11–17 on 2nd whorl and to 20–29 at start of penultimate whorl, but rapidly becoming feeble so that on body whorl they appear only as irregular, scratch-like grooves, except on base (anterior to ancillid groove) where there are 7–14 low but distinct spiral lirae, strongest anteriorly.

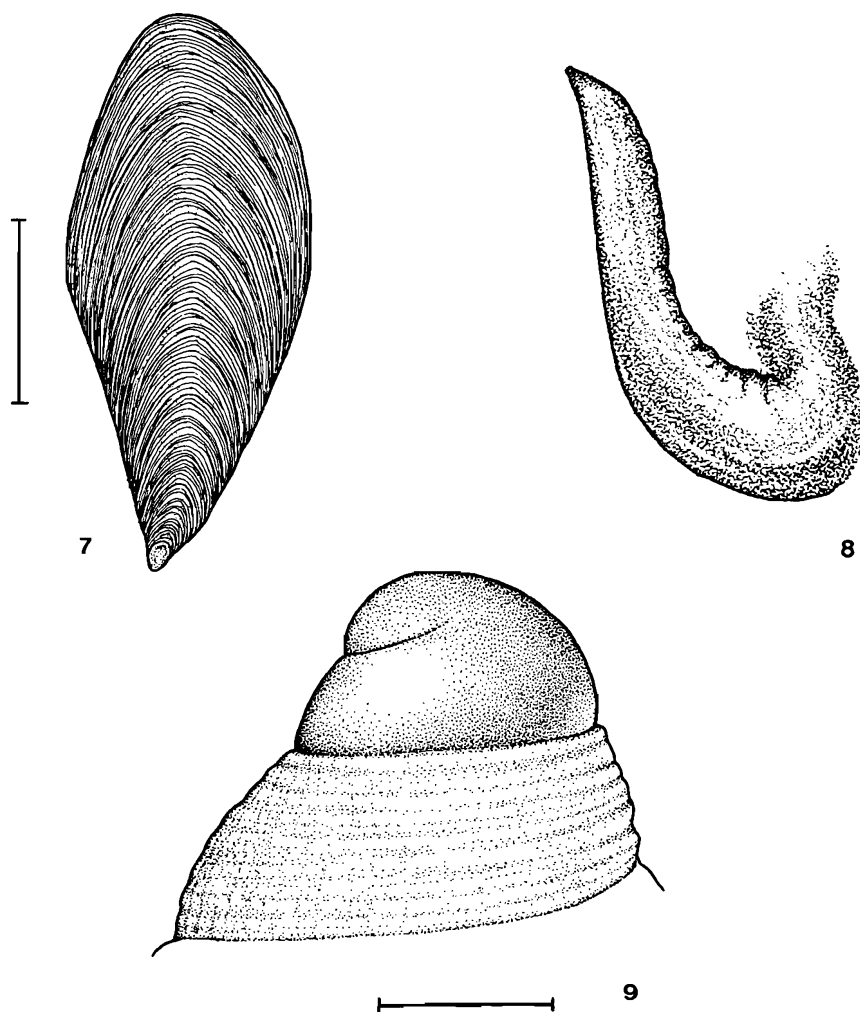
Protoconch (Fig. 9) domed, of about 1,3 smooth whorls, 1st whorl rounded, suture rather deep, breadth 2,1–2,4 mm.

Ground colour (ISCC–NBS system) pale yellowish-pink with fine, inconspicuous lines of alternate dashes of brownish-orange and white, suture bordered below by a row of small brownish-orange spots which expand on last whorl into diffuse, irregular blotches of that colour, median area of body whorl suffused with brownish-orange, showing below periphery on spire whorls; one paratype heavily blotched with deep brown, leaving only inconspicuous zones of pale flecks above periphery and on base of body whorl. Protoconch light greyish-red; aperture and inner lip light brown.

Dimensions: 29,0 × 16,3 mm (holotype).

Operculum (Fig. 7) moderately large (length about 0,80 that of aperture), fairly thick, moderate yellowish-brown, with coarse growth-lines; undersurface with a large, elliptical attachment scar and median ridge.

Radula (Fig. 4) with 72 rows of teeth; rachidians with three simple, subequal cusps, basal edge of rachidian plate finely and weakly serrulate on each side.



Figs 7-9. *Naudoliva caitlinae* sp. n. 7. Operculum, scale-line=5 mm. 8. Penis, not to scale. 9. Protoconch and 1st teleoconch whorl, scale-line=1 mm.

Distribution: Known only from the continental shelf off Sandy Point, western Transkei.

Type material: Holotype NM C4271/T106 (radula slide M242), 32°34,1'S, 28°43,1'E, 87 m, coarse sand. Paratypes 1-2, NM E5750/T107, 32°35,5'S, 28°42,2'E, 95 m, sponge-rubble. All type specimens were living.

Etymology: Named after my younger daughter, Caitlin Jane.

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